

The role of the interest rate in the economy

Speech by Mr. Jarle Berge, Deputy Governor of Norges Bank, AON Grieg Investors Zürich, 19 October 2003

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The interest rate is a variable that affects most of us, whether we are investors or borrowers. And even if we don't have debts or assets, the influence of the interest rate on the economy will affect us indirectly.

In my speech tonight, I would like to look at some factors surrounding the interest rate and monetary policy. I will discuss the various roles played by the interest rate in the economy from a more theoretical viewpoint and examine interest rate movements over the past 130 years to see whether there are lessons to be learned. Furthermore, I will touch upon the factors governing the interest rate in Norway and, in conclusion, I will discuss some challenges facing monetary policy in a number of countries.

The interest rate has several functions in an economy

Many financial decisions involve a trade-off between present and future consumption. One example of this is households' decisions on saving and borrowing. Income from employment normally varies in the course of a lifetime. Earnings are low when we are young, rising in our middle years, before falling again as we reach retirement age. Many people raise loans in early adulthood, repay their loan and build up positive net wealth as they reach middle age, then draw on their savings towards the end of their lives. This results in consumption that is more evenly spread over a lifetime than implied by the flow of annual income. A company's investment choices also involve the choice between present and future consumption. Owners may give priority to present consumption by taking out dividends, or they can invest profits in the company and thereby lay the basis for larger profits later. By placing capital at the disposal of others, in other words by saving, one's own consumption is postponed. People require compensation for this, both because human beings are impatient and because there is a certain probability we may not live to see the future. The interest rate provides this compensation. If we want to use our money for consumption now or to finance investments by raising loans, the interest rate is the price we must pay in order to do so. The interest rate is therefore a key variable in our choice between consumption now or in the future.

Interest rates are the terms at which money or goods today may be traded off for money or goods at a future date.

The interest rate is also the price of money. We can choose to store our savings in the form of cash or in a current account. The price we pay is the return other alternatives would have provided. Bank deposits and bonds are examples of investments that provide a reliable return - interest income. If we choose to store money, we lose this income. But in contrast to

bonds, money can be used directly to purchase goods and services. Interest is therefore also the price we pay in order to have liquid holdings.

The interest rate is also used as an instrument in economic policy. Setting the interest rate to achieve a monetary policy objective, often price stability or low and stable inflation, is usually the responsibility of the central bank. The central bank sets a very short-term nominal interest rate. In Norway, this is the interest rate on banks' overnight deposits in Norges Bank, the sight deposit rate. This rate determines the very short interest rates in the money market with maturities from one day upwards, normally up to Norges Bank's next monetary policy meeting. Longer-term rates are determined by expectations concerning Norges Bank's use of instruments in the future and by the degree of confidence in monetary policy. The real interest rate, that is the nominal interest rate minus expected inflation, is the rate that influences decisions concerning saving and investment.

The interest rate influences inflation indirectly via domestic demand for goods and services and via its effect on the exchange rate. When the interest rate falls, it is less profitable for households to save, and they will therefore increase their consumption now rather than wait until later. Borrowing also becomes less costly, with an associated rise in investment. Higher demand in turn leads to a higher rise in prices and wages. Lower interest rates make it less attractive to invest in NOK and less attractive for Norwegian enterprises and households to raise loans in other currencies. Lower interest rates will therefore normally result in reduced capital inflows and a weaker krone. This makes imported goods more expensive. In addition, a weaker krone increases activity, profitability and the capacity to pay in the internationally exposed sector.

The equilibrium interest rate and the neutral interest rate are closely related concepts.

The neutral interest rate is the rate that does not in itself result in an increase or a reduction in price and cost inflation in the economy in the course of a business cycle. An assessment of whether interest rate setting is expansionary or contractionary, involves comparing short-term market rates with the neutral rate. A real interest rate in the interval 3 - 4 per cent is often regarded as neutral in economies such as the Norwegian economy. I will revert to a quantification of this level later.

In the longer term, the interest rate level influences capital accumulation in the economy and the potential for economic growth. The equilibrium interest rate is the rate that ensures that capital accumulation corresponds to saving in the economy. This results in an output potential that over time satisfies demand without generating pressures in the economy.

The equilibrium interest rate is determined by long-term phenomena associated with the structure of the economy, while the neutral rate is defined on the basis of its influence on pressures in the economy and thereby on inflation. In the long term, the neutral interest rate will correspond to the long-term equilibrium interest rate in the economy.

The long-term equilibrium interest rate is determined by fundamental structural relationships in the economy, such as consumer impatience and the economic growth rate. Rising population growth means that a larger labour force must be equipped with real capital. Fixed investment and saving must increase. Higher population growth will therefore

require a higher equilibrium interest rate. The higher productivity growth is, the higher future gains from today's investments will be. This also provides the basis for a higher equilibrium interest rate.

The long-term equilibrium interest rate cannot deviate too much between countries over time. With liberalised capital markets, capital will move towards those countries that can provide the highest return. Substantial interest rate differentials between countries cause fluctuations in the exchange rate and will not be compatible with a long-term equilibrium. Thus, we may refer to a global equilibrium interest rate for open economies, although perhaps with an added national risk premium.

The interest rate has thus several roles to play in the economy and these roles should be fairly closely linked. The interest rate shall in the short and medium term contribute to stable inflation and stable developments in production. At the same time, it shall in the long term also contribute to equilibrium in the market for real capital. Capital accumulation shall over time correspond to saving. To achieve this, the real interest rate must not over time deviate substantially from the return on real capital. Substantial deviations can give rise to undesirable fluctuations in the markets for real capital that have no basis in economic fundamentals.

The economic situation varies over time. Monetary policy will set an interest rate that is alternately above and below the neutral rate. Consequently, the interest rate level will probably not deviate substantially from the long-term equilibrium rate over time. By taking a gradualist approach to interest rate setting, it is also possible to assess whether imbalances are developing in capital markets.

Interest rate developments from a historical perspective

In the long term, the equilibrium real interest rate will be determined by underlying structural relationships in the economy. These relationships will probably only be changed gradually so that changes in nominal rates will primarily reflect changes in expected inflation. In the short term, however, the real interest rate will vary, not least because monetary policy seeks to influence the real interest rate in the short and medium term. Changes in nominal interest rates might therefore reflect changes in both real interest rates and inflation expectations.

Nominal interest rates were relatively stable from the 1800s and up to the 1950s.¹ Periodically strong fluctuations in inflation resulted in substantial variations in the real interest rate from one year to the next, as we measure it in retrospect.

The gold standard set the framework for monetary policy at the end of the 1800s and up to 1929.² During the gold standard era, the central bank determined the price of the national currency relative to the price of gold. Central banks had to keep stocks of gold that could be used to stabilise the gold price by actively buying and selling gold in the market.

The money supply and inflation in a country are then determined by the supply of gold on the world market. When two or more currencies are pegged to gold at a fixed price, these currencies will also have a fixed price in relation to each other. As in other systems with fixed

exchange rates, this restricted the individual country's scope for using the interest rate as an instrument to stabilise the real economy.

In the interwar years, nominal interest rates were relatively high. This may primarily be ascribed to the policy of gold parity that was pursued in many countries. The aim of a number of countries, including Norway, was to strengthen the value of the national currency against gold, so as to re-establish the gold parity of the pre-First World War period.

Nominal interest rates increased markedly from 1950 - 1985, reflecting accelerating inflation in this period. After 1985, nominal interest rates fell again and are now at about the same level as in the interwar period. At the same time, short-term variations in nominal interest rates seem to have increased. This may be related to central banks' more active use of interest rate policy to combat inflation.

Developments in inflation since 1870 have been remarkably similar from country to country. This is not a new feature that has coincided with the market globalisation we have witnessed in recent years.

It would appear that inflation is particularly low in periods when monetary policy has a clearly defined nominal anchor. Up to the First World War, the gold standard was that anchor, providing a direct link between the supply of gold and inflation. Whenever gold was discovered, the gold price dropped. In order to fulfil its commitment to maintaining the fixed price between a country's currency and gold, the central bank was obliged to buy gold using the national currency as payment. The supply of money then increased, which contributed to inflation. In periods when no new gold finds were made, prices tended to be stable or falling. The tendency for prices to fall was amplified in periods of strong economic growth. Economic growth is accompanied by higher turnover. Unless new money is printed to accommodate this, prices must fall.

After 1945, with the introduction of the Bretton Woods system, a number of countries' currencies were pegged to the US dollar, which was in turn pegged to gold until 1971. In many ways, US monetary policy and nominal interest rate levels functioned as a nominal anchor, and to a large extent governed global interest rates and inflation developments.

Inflation has been particularly high in times of war. The 1970s and 1980s were characterised by fairly high inflation following the collapse of the Bretton Woods agreement, the oil price shocks and counter-cyclical policy. From the end of the 1980s, an inflation target for monetary policy has functioned as a credible nominal anchor in a number of countries, curbing the pace of inflation.

To calculate historical real interest rates, an estimate must be made of expected inflation. Figures for actual inflation are normally used. Inflation expectations may deviate from actual inflation, especially in periods when the latter is subject to considerable fluctuation.

From 1870 to today, developments in global real interest rates can be roughly divided into 5 periods. In the period 1870 - 1896, the real interest rate ranged between 4 and 5 per cent, and inflation fluctuated around zero. No new major gold finds were made in this period and the economy in general was exhibiting brisk growth.

The real interest rate fell to about 1-3 per cent in the period 1897 -1913, reflecting some acceleration in inflation in this period. New discoveries of gold were again made in this period. In the 1800s and up to the First World War, the gold standard and price fluctuations in the agricultural sector contributed to alternating inflation and deflation.

In the interwar period 1918-1940, real interest rates were fairly high, sometimes well above 5 per cent. This was partly due to the policy of gold parity and the reestablishment of the gold standard, which resulted in high nominal interest rates in a number of countries.

The post-Second World War era can be divided into two periods. The post-war period up to the collapse of the Bretton Woods agreement in 1971 was characterised by unusually low real interest rates, ranging from 0 to 2 per cent. Real interest rates were low despite high returns in the stock market, strong growth in output and in stocks of real capital. According to most economic growth theories, this should have been accompanied by a high real interest rate. From a more short-term perspective, however, low real interest rates led to high investment activity and growth. However, this probably contributed to the tensions that led to the marked changes in economic policy in the 1970s and 1980s, internationally and in Norway.

To a certain extent, a negative real interest rate characterised the 1970s and most of the 1980s in Norway. In retrospect, we might ask whether the interest rate was kept too low in relation to a reasonable long-term equilibrium level. In particular, this was a period of substantial fluctuations in the Norwegian economy, with high and variable inflation. The absence of a nominal anchor was one of the main reasons behind these pronounced swings in the Norwegian economy. Because of the extensive use of credit regulations, nominal interest rates remained low. With a policy of low interest rates and devaluations, inflation took root. Nominal interest rates were kept at a low level even though inflation and the value of tax- deductible interest expenses rose. The wide fluctuations culminated in a credit boom in the mid-1980s, followed by a deep recession and high unemployment towards the end of the 1980s.

From the mid-1980s, during and after the credit bubble, it was recognised that a substantial revision of economic policy would be necessary and that the problems created by inflation had to be taken seriously. The exchange rate was chosen as the nominal anchor. The real interest rate gradually rose and was relatively high until the mid-1990s, partly as a result of the tight monetary policy that was conducted in order to reduce inflation. The real interest rate has fallen markedly since the beginning of the 1990s.

Neither the neutral interest rate nor the equilibrium interest rate are variables that can be observed. Economic theory can contribute insight into the factors that determine the equilibrium rate, but attempts to quantify the equilibrium interest rate based on theory yield a broad interval for a possible level. Quantification also presents problems, as estimates must be made for unobserved variables such as consumer impatience. An estimate of the equilibrium interest rate in industrialised countries presented in the publication Penger og Kreditt 2/00³ indicate an interval of 3-9 per cent. The upper limit in particular seems unreasonable in relation to observed real interest rates, for example.

An alternative is to use historical average interest rates on the basis of an assumption that actual real interest rates will vary around the equilibrium interest rate. This method also poses problems. Each historical era will, for example, be affected by the specific characteristics of that era. Credit rationing, for example, has influenced interest rate formation for long periods. In addition, both population and productivity growth have varied over time.

Throughout the period 1870-2003, the average for long-term real interest rates in Norway has remained close to the average in the UK and the US: Norway 2.2 per cent, the UK 2.0 per cent and the US 2.8 per cent. The economy has changed substantially in this period. Thus, the average for this period probably provides little indication of what a long-term equilibrium interest rate is today.

In order to comment on whether the real interest rate today is low or high, it may therefore be more meaningful to look at a "representative" period when the structure of the economy was more similar to the current structure. It is most reasonable to examine a period in the recent past, for example the past 10-15 years. Markets were deregulated in this period, for example. For Norway, it would also be natural to study the period after 1994. In the period 1994-2002, the average real interest rate for Norway was 4.2 per cent, the UK 4.7 per cent and the US 3.4 per cent. Since 1994, the long-term real interest rate in Norway has varied between 3 and 6 per cent, reaching its highest level at the beginning of the period and its lowest in the years 1997-2001. Both the Norwegian and the global economy have now entered a period of low real interest rates. The low interest rate level must be viewed in the light of the possibility of persistently low inflation both in Norway and other countries. However, the real interest rate is not by any means as low as when inflation in Norway was high in the 1970s and 1980s.

Various monetary policy regimes

As long as capital markets have been in existence, the interest rate has had the key role of creating equilibrium within and between the various markets. The interest rate's role as a monetary policy instrument used to influence inflation, however, is a more recent phenomenon.

The gold standard was introduced in Norway as the basis of the Norwegian monetary system by the Act of 4 July 1873 relating to the Monetary System. Norway's monetary system was largely based on the gold standard until its international collapse in 1929, when the Norwegian krone was pegged to the pound sterling.

Up to the mid-1980s, the focus of monetary policy was, first, to stabilise the exchange rate by means of interventions and regulation of international capital movements. Second, credit developments were governed by regulations on borrowing. The interest rate was primarily used to provide cheap credit for some sectors. Many other countries have followed a similar path of development.

Many of the changes in international monetary policy over the past 25 år can be viewed as a response to the problems of stagflation in the 1970s and to financial innovations and

deregulation of financial markets in the 1980s. In many countries, the authorities have increasingly focused on price stability as the long-term objective of monetary policy, with the interest rate as the most important policy instrument. The nominal interest rate (the key rate) will thus be set by central banks with the objective of achieving a level of actual inflation that is equal to the inflation target. Provided there is confidence in monetary policy, expected inflation will remain consistent with the inflation target. Changes in nominal interest rates will then be fully reflected in real interest rates. This makes monetary policy more effective.

The changes in Norges Bank's monetary policy over the past 25 years are largely in line with international developments. In Norway, the interest rate was used to stabilise the exchange rate from 1986. Capital regulations no longer had the desired effect and were removed. Events in international financial markets in the last half of the 1990s led to more pronounced fluctuations in the exchange rate and demonstrated that the exchange rate cannot be finely tuned. High petroleum revenues, fiscal slippage and expectations of an increase in the use of petroleum revenues contributed to eliminating the effect of interest rate policy on wage formation and fiscal policy. The exchange rate was no longer suitable as a nominal anchor.

The Government laid down new monetary policy guidelines in March 2001. Norway's current system of flexible inflation targeting and the objective of inflation over time of 2 ½ per cent is similar to systems in other comparable countries.

The OECD countries have placed greater emphasis on inflation targeting through the 1990s. This has had a substantial effect on the largest capital markets in the global economy, i.e. in the EU, the US and Japan. Capital markets outside these areas are small. However, changes are also being made in monetary policy regimes in a number of emerging markets. One important tendency is that fewer countries operate an exchange rate policy regime where they are free to change the conversion rate to other currencies on their own initiative, so-called "crawling pegs". A number of emerging markets have chosen inflation targeting instead: for example Israel, Chile, Brazil, Colombia, Korea, Thailand, Mexico og South Africa. Other countries, such as China, Hong Kong and the Baltic States, have chosen to continue to use a fixed exchange rate system.

The operational target of monetary policy in Norway as defined by the Government is inflation of close to 2.5 per cent over time. The inflation target provides economic agents with an anchor for their decisions concerning saving, investment, budgets and wages. The inflation target is also a vehicle for allowing monetary policy to stabilise developments in output and employment. This objective is also expressed in the Regulation on Monetary Policy. High demand for goods and services and labour shortages normally point to higher inflation. When interest rates are increased, demand falls and inflation is kept at bay. When demand is low and unemployment rises, inflation will tend to slow. Interest rates will then be reduced. This orientation of monetary policy will normally also contribute to stabilising output and employment.

The impact of monetary policy occurs with a lag. The current inflation rate does not provide sufficient information to determine the level at which interest rates should be set now. Our analyses indicate that a substantial share of the effects of an interest rate change will occur within two years.

Frequent and marked interest rate changes can keep inflation under tight control, but will lead to wide variations in output and employment. This can be called a strict inflation target. Theoretically, we could also have chosen to stabilise output without taking into account variability in inflation. This can be called a strict output target. In Norway, as in many other countries, we have chosen an intermediate solution. Interest rates are changed more gradually with less impact on output than under a strict inflation target, and inflation is allowed to deviate from the target over a somewhat longer period. This is called flexible inflation targeting.⁴ A two-year horizon in interest rate setting will also contribute to smoothing fluctuations in output and employment. Two years is therefore normally a reasonable time horizon for achieving the inflation target.

The most important monetary policy instrument is the interest rate on banks' sight deposits in Norges Bank. Short money market rates will shadow changes in Norges Bank sight deposit rate. The short-term nominal interest rate in Norway is now very low historically.

With reduced pressures in the economy and the prospect of an inflation rate below target at the two-year horizon, Norges Bank has over the past year reduced the key rate on a number of occasions. The interest rate reductions since December 2002 reflected a change in the inflation outlook. The cuts were made in response to a weaker global economy and a sharp reduction in interest rates in other countries. In addition, Norway's business sector has clearly felt the effects of the high level of costs and the strong krone exchange rate. The public sector has also had to scale back its activities following last year's wage settlement. The sluggish prospects both abroad and at home have in turn influenced the Norwegian labour market and the outlook for wage and price inflation in the years ahead.

The interest rate reductions this summer were carried out in larger steps than what has been customary. They were important in order to prevent inflation expectations from taking hold at too low a level. The interest rate cuts, which have also brought real interest rates down to a historically low level, will also contribute to a pick-up in growth in the economy.

Relationship between short-term and long-term interest rates

Interest rates with a long maturity may be viewed as a sequence of expected short-term interest rates at different future dates. Changes in expectations concerning Norges Bank's future monetary policy may therefore influence interest rates with a maturity in excess of 1-2 months. Norges Bank's mandate for monetary policy is well known in the market. When economic agents also understand Norges Bank's response pattern in connection with events in the economy, market expectations concerning the interest rate will change as a result of economic news and to a lesser extent as a result of Norges Bank's interest rate decisions in themselves.

Norges Bank reduced the key rate at the monetary policy meeting on 17 September 2003. Short-term interest rates showed little change since the interest rate decision was expected by market participants.

At the same time, the Bank changed its bias concerning future inflation. At the monetary policy meeting in August, the Bank stated that, with an interest rate of 3 per cent, the

probability that inflation two years ahead would be lower than 2½ per cent was greater than the probability that it would be higher. Following the meeting on 17 September, the Bank stated that, with an interest rate of 2.50 per cent, the probability that inflation two years ahead would be higher than 2½ per cent was the same as the probability that it would be lower. Expectations concerning future short-term interest rates rose slightly, probably as a result of the change in Norges Bank's bias concerning future inflation. This was perceived as new information by market participants. The yield curve was therefore a little steeper following the monetary policy meeting.

The market's expectations concerning future short-term rates can be reflected in forward rates. Interest rate expectations for the next few years largely depend on the economic outlook and market expectations concerning monetary policy. In the long term, up to ten years, market participants are unlikely to have any particular expectations concerning cyclical fluctuations. The forward rate may then be interpreted as the sum of the expected real interest rate and expected inflation when the economy is in balance.

Without limitations on capital movements, the real interest rate must be expected to develop approximately the same across countries over time. If there are no systematic differences in the risk premium between countries, differences in forward rates may be interpreted as differences in inflation expectations between countries.

In the euro area, the inflation target is below, but close to 2 per cent. This results in an inflation differential of ½ - 1 percentage point against Norway. An investor must therefore have an interest rate in Norway that is ½ - 1 percentage point higher than in Germany in order to achieve the same expected real return in the two countries. Following the introduction of the inflation target, the difference between German and Norwegian forward rates was about 1 percentage point for a long time. So far in 2003, this differential has been somewhat lower. This interest rate differential indicates that the market is confident that we will achieve the inflation target.

This line of reasoning can also be reversed. Given stable inflation expectations of 2½ per cent, i.e. that monetary policy is credible, an estimate of the expected equilibrium real interest rate can be derived from the long-term forward rate. About ten years ahead, market participants expect a short-term nominal interest rate in Norway of about 5¾ per cent. With expected inflation corresponding to the inflation target of 2½ per cent, we can estimate the market's expected real interest rate in the long term at about 3¼ per cent. This is approximately the same level for long-term real interest rates as in the period 1997-2002, but higher than the long historical average from 1870 to 2003.

Deflation tendencies in a number of countries

Inflation has declined in a number of countries. This indicates that the global shift in monetary policy, with a greater focus on inflation, has been effective. However, other factors have also played a role. Fiscal policy is being used to a lesser extent in demand management. Structural reforms have been adopted in order to improve the growth potential of the economy. Financial markets have been liberalised and the markets for both financial services and products have been globalised.

Deflation, i.e. a sustained fall in prices, has again become a subject of economic debate in the last few years. This is naturally due to the fall in consumer prices in a number of countries in Asia and the very low rate of inflation in many countries. Deflation can have a destabilising effect. If market participants expect prices to continue to fall, the real interest rate may be high since the nominal interest rate cannot fall below zero. Households and enterprises may then find it profitable to increase saving pending a decline in prices, which leads to further fall in demand. The real debt burden increases as a result of the fall in prices. This curbs demand. Deflation is often accompanied by a decline in asset prices. This reduces banks' collateral value for loans and may reduce banks' total lending.

Deflation can be spread across countries. Even though Norway is not experiencing deflation, we see that increased imports from low-cost countries are curbing inflation in Norway. Inflation in Norway is now low. It is primarily developments in prices for imported consumer goods that have pushed down the rise in consumer prices adjusted for tax changes and excluding energy products (CPI-ATE). The low rise in prices reflects the appreciation of the krone through 2002 and the low rate of inflation abroad. The rise in prices for domestically produced goods and services has also slowed, particularly prices for goods influenced by world market prices.

As a result of the fall in inflation rates globally, key monetary policy rates are now low in the major economies. Monetary policy has also been eased considerably in the US and the euro area over the past few years as a result of the economic downturn. Norway's monetary policy must be adapted to a global economy that is marked by unusually low interest rates.

The Federal Reserve stated after its last meeting that the upside and downside risks to the attainment of sustainable growth for the next few quarters were roughly equal. The risk of inflation becoming undesirably low was therefore deemed to be greater than the risk that inflation would move up from its already low level. This is the predominant concern of monetary policy in the period ahead. Monetary policy in the US may therefore remain expansionary for a fairly long period ahead.

In Japan, expectations of a continued fall in prices have held up the real interest rate in spite of low nominal interest rates. In Japan, the key rate has been close to zero since the end of 2001. This limits the central bank's scope for stimulating demand. In recent years, "untraditional" monetary policy instruments have also been discussed, such as supplying considerable liquidity through purchases of various types of securities, including long-term paper. The Bank of Japan has to a large extent purchased long-term government bonds and, since last summer, asset-backed securities as well.

How to respond to financial bubbles

Another subject that is being discussed globally is how monetary policy should respond to financial bubbles. Should we try to prevent the bubble from developing or be content with responding afterwards once the bubble has burst and then make the best out of the situation? And what is actually feasible?

Financial stability is often defined as the absence of financial instability. Those who experienced the banking crisis in the 1990s have a clear perception of this. Financial instability is characterised by wide fluctuations in prices for assets, such as dwellings, commercial property and securities or failure in the functioning of financial institutions (a "run" on banks) or financial markets. Financial instability is also characterised by disturbances in credit availability or the flow of capital. This may have consequences for output, employment and for inflation. Financial stability therefore promotes price stability.

In tandem with the trend towards lower inflation since the mid-1980s, asset prices have shown wider variations and financial crises have become more frequent. In the short term, a conflict may arise between achieving the inflation target and financial stability. In Japan, equity and property prices increased sharply in the 1980s, while inflation was subdued. In the US, household and corporate debt rose fairly sharply and equity prices trebled between 1994 and 1999, while inflation was moderate. This has prompted a debate as to whether monetary policy must take financial stability into account to a greater extent.

Low interest rates and low inflation may contribute to a rise in asset prices and debt build-up (financial bubbles) through several channels. With confidence in the inflation target, inflation may be less affected by changes in the economic situation. Increased international competition and imports from low-cost countries can keep inflation at a low level even during a period of strong expansion in the domestic economy. High productivity growth contributes to low inflation, but also to high earnings. Banks will then record low losses and may increase their lending. Investments financed by loans may push up property prices.

When the bubbles burst, either in the housing market or in the stock market, asset prices fall and many will want to reduce their debt. This reduces demand and may lead to a fall in prices. Deflation in Japan is clearly related to the property and stock market bubble that burst in the early part of the 1990s.

The build-up of financial bubbles may make the financial sector more vulnerable to any disturbances in the economy at a later stage. A sharp rise in asset prices and debt build-up may pose a risk to economic stability. In order to reduce this risk it will in certain situations be appropriate to apply a somewhat longer horizon than the normal time horizon of two years for achieving the inflation target. This presupposes that financial market participants are confident that inflation will be low and stable over time. Norges Bank has stated that if it is necessary to deviate from the normal response pattern in order to promote financial stability, the Bank will give notification of this.

Closing remarks

Interest rates are now low both globally and in Norway. This applies to both nominal interest rates and real interest rates. Interest rates differ from what we were accustomed to earlier, and real interest rates are lower than the interval normally arrived at as a result of analytical attempts to estimate the theoretical equilibrium interest rate.

Low real interest rates in many countries are largely the result of a conscious policy to counteract the international downturn of the past few years. Low real interest rates will in

the short term stimulate economic growth and contribute to preventing deflation. Keeping interest rates low for a long period may involve risk, however. Bubbles may develop in markets for both financial and real capital. Low-inflation bubbles are a challenge to monetary policy. One would normally expect monetary policy to be gradually tightened as economic growth and inflation returned to more normal levels and that actual interest rates would again correspond more closely with the more theoretical equilibrium interest rate. There is little reason to expect otherwise in the current business cycle, although one might of course raise the question of whether the equilibrium interest rate is still in the range we have believed it to be.

In some countries, it could be argued that, in the US for example, the equilibrium interest rate should be higher in the light of strong productivity growth and continued relatively strong population growth. In much of Europe, however, populations are more likely to decline and productivity growth is, if anything, weaker than previously, indicating that the equilibrium interest rate should be lower.

Furthermore, since we are referring to a global equilibrium interest rate, shouldn't developments in China and other emerging markets also play a role? They probably do, but given the distribution of financial and real capital in the world, it is likely that the global equilibrium interest rate is to a large extent affected by developments in the US, the EU and Japan.

However, viewed from the perspective of a very small, though very open, economy such as ours, it is clear that equilibrium interest rates and required returns do not reflect specific Norwegian conditions, but are determined externally, and we must adapt to this situation as well as possible.

Footnotes

¹Bordo, M.D. and Jonung, L. (1987), *"The long-run behaviour of the velocity of circulation"*. Cambridge University Press and Norges Bank

²J.D. Sachs, F. Larrain (1993), *Macroeconomics in the Global Economy*

³Hammerstrøm, G and I. Lønning, "Kan vi tallfeste den nøytrale renten? (Is it possible to quantify the neutral interest rate?)". *Penger og Kreditt* 2/2000

⁴Svensson, L.E.O. (September 2002), *"Monetary Policy and Real Stabilization"*. Princeton University